

APPENDIX J

Input: A dataset without any missing and no constant variables, X

Output: The normalized dataset, NX

Process:

```
[m n] = sizeof(X);  
Initialize a matrix  $NX$  of size  $m$  by  $n$ ;  
For  $i = 1:n$   
     $x = X(:, i)$ ; //  $x$  is the  $i$ th column of  $X$   
     $x\_mean = \text{mean of } x$ ;  
    For  $j = 1$  to  $m$ ,  
         $x(j) = x(j) - x\_mean$ ;  
    End For  
     $x\_norm = 0$ ;  
    For  $j = 1$  to  $m$ ,  
         $x\_norm += x(j)^2$ ;  
    End For  
     $x\_norm = \text{sqrt}(x\_norm)$ ;  
    For  $j = 1$  to  $m$ ,  
         $x(j) /= x\_norm$ ;  
    End For  
     $NX(:, i) = x$ ; //  $i$ th column in  $NX$  is  $x$   
End For
```